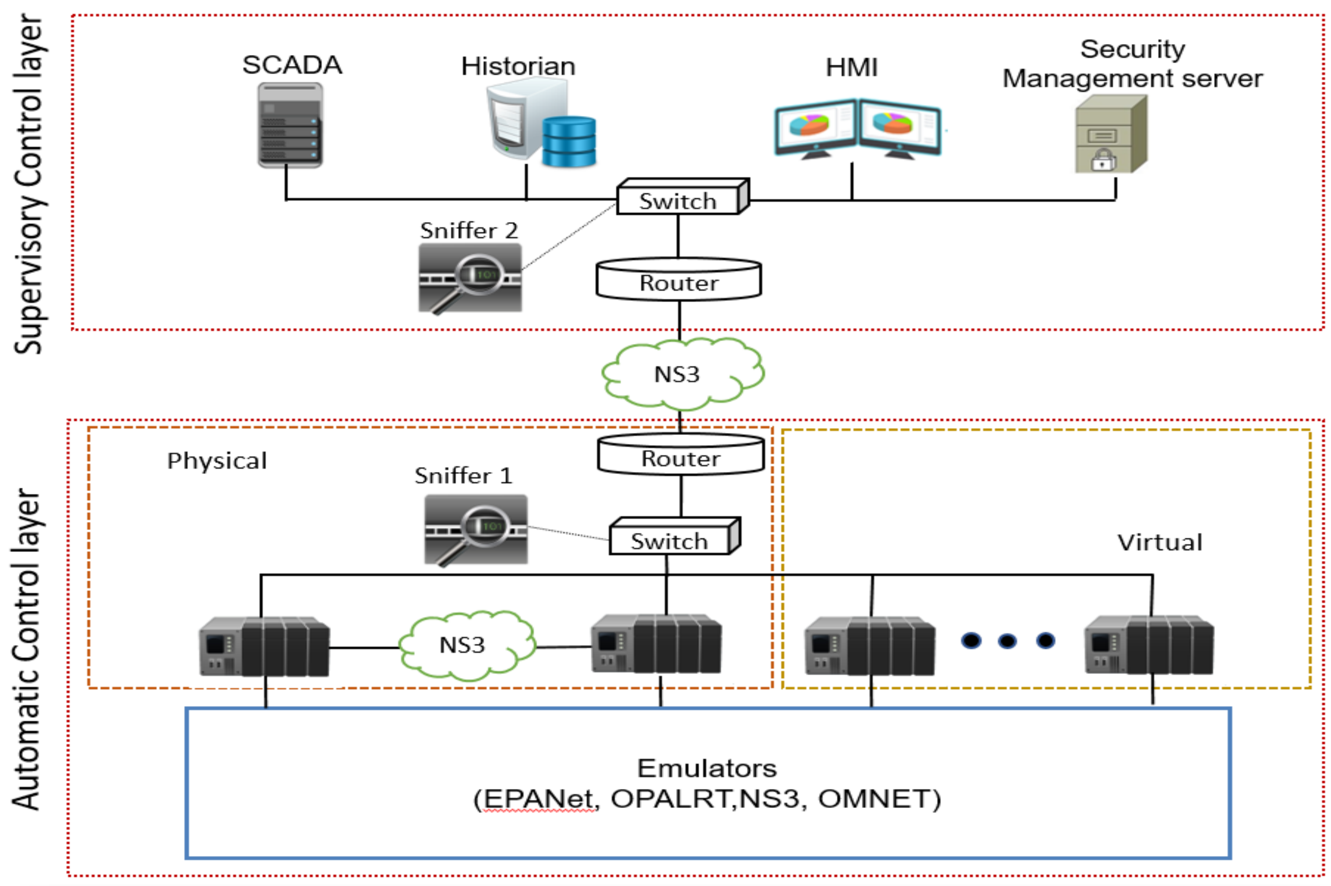
Research and Innovation Center of Excellence

KIOS TESTBEDS FOR CRITICAL INFRASTRUCTURE SYSTEMS

Cyber-Physical Security Testbed

Adoption of computing devices in Critical Infrastructures (CIS) render these systems susceptible to physical and/or cyber security threats. The KIOS CoE Cyber-Physical Security testbed aims to model, identify, and control security vulnerabilities and attacks in a wide class of CIS. The testbed integrates and exploits the interoperability between Software and Hardware components.



ARCHITECTURE

- **Software Emulators** of several Critical Infrastructure Systems
- **Virtual PLCs** implemented on small computing devices (e.g., RPis)
- **Hardware in the Loop (HIL) PLCs**
- Integration of **Virtual (simulated)** and **Real Network Infrastructures**
- Use of **Industrial grade Control and Security Systems**

CAPABILITIES

- **Model** and **implement attacks** in different CIS
- **Identify vulnerabilities** in existing CIS and their individual components
- **Deploy** and **test** attack detection and mitigation algorithms
- **Design** and **implement** vulnerability control mechanisms for attack prevention

IMPACT

- **Education and training activities** on various types of attacks
- Provide **solutions** for attack **detection, prevention,** and **mitigation** for various CIS
- **Demonstrate** security vulnerabilities of current CIS
- **High-quality research** in the security of cyber-physical systems
- Provide an **exercise ground** for CIS operators to facilitate **attack identification** and **forecast**

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Imperial College London

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